

Immigration and the demand for life insurance: evidence from Canada, 1911

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This article analyses the determinants of the demand for life insurance using sample data from the 1911 Census of Canada. We find that immigrants' demand for life insurance was on average around 13 percentage points lower than that of native-born Canadians, with the effect varying by province of settlement. We interpret these findings as evidence suggesting a greater appetite for risk among self-selecting immigrants relative to native-born Canadians. We also uncover evidence of a slow assimilation of immigrants in terms of life insurance holdings, slower indeed than the process of assimilation in terms of earnings.

1. Introduction

In the period from the turn of the twentieth century up to the beginning of the Great War, Canada experienced rapid economic growth and high levels of immigration. On average, Canadian GNP increased annually by 6.21 percent over the period, representing the highest level of real output growth that the Canadian economy has ever experienced (McInnis 2008). From the onset of the twentieth century until 1911, Canada's population expanded by more than 33 percent, which was almost entirely due to the arrival of around 1.8 million immigrants (The Canada Yearbook, 1911). Those developments coincided with an equally remarkable growth of the Canadian insurance market, which became increasingly important for investment and the continued expansion of the Canadian economy, as well as for protecting households from increasing levels of income risk associated with growing urbanization and industrialization. The nominal value of life insurance policies in force increased by a factor of ten between 1875 and 1910, while in the first decade of the twentieth century alone life insurance companies in Canada more than doubled their total assets (Canada Yearbook, 1911). An important element in understanding this growth is an appreciation of the factors that influenced the demand for life insurance among Canadian households and, in particular, what role immigration played in this process.

In this study, we investigate the determinants of insurance demand and direct the focus on the issue of immigration. The time period under investigation is interesting, not only due to its remarkable population growth dynamics—in particular the very high share of new immigrants—but also as it creates a unique setting for research on risk attitudes of immigrants. It is also rare to have the opportunity to study household preferences free from any interference of government-provided insurance. In 1911, state-sponsored substitutes for private insurance were unavailable and governmental involvement in the Canadian insurance market was only in a regulatory capacity. Furthermore, employers were unlikely to provide workers with life insurance (Di Matteo

and Emery 2002). Therefore, the decision to purchase insurance at this point in time can be viewed as being based purely on private motivations.

The presence of formal financial services such as life insurance is often suggested as a crucial factor for growth of developing countries (Brainard 2008). Insurance companies' role is not only in the provision of investment funds, but also in increasing the efficiency of diversification of individual household risk. In the absence of well-developed insurance markets, households are forced to rely on suboptimal informal insurance arrangements, such as holding cash savings or the accumulation of physical asset stocks (Rosenzweig 2001). The availability of formal insurance can therefore provide a more efficient mechanism for poor households to pool idiosyncratic risk. Not surprisingly, the development of the insurance market in Canada during the late nineteenth century was regarded of vital importance to Canadian development (Drummond 1962).

The database used in this research is a 5 percent representative sample of the population of Canada constructed by the Canadian Century Research Infrastructure (CCRI) and based on the 1911 Census. To the best of our knowledge, the underlying study is the first to use this large and comprehensive database for research on insurance holdings in Canada. The data set contains detailed records regarding holdings and value of life insurance as well as a wide selection of control variables, including the respondent's place of birth and, for immigrants, the date of arrival in Canada. Furthermore, the data records the province of birth and residence of Canadian-born respondents, which allows us to also identify internal migrants. It is important to note that enumerators were instructed to record life insurance holdings "whether in an old line company, an assessment company or fraternal organization" (Census and Statistics Office 1911). The insurance variables therefore capture not only the contracts purchased from commercial providers but also from informal organizations, such as burial societies. This broad coverage of insurance providers therefore reduces the problem of pricing of insurance for migrants, as fraternal societies would likely have provided an alternative to formal contracts.¹ Based on around 72,000 observations of household heads, we estimate the probability of holding life insurance as a function of the available control variables.² We find that immigrants were around 12.8 percentage points less likely to purchase life insurance. The probability that an immigrant holds life insurance increases during the first 40 years or so after immigration before it begins to fall. The findings provide an indication of the existence of a lower risk aversion among immigrants.

This study provides two main contributions. First, it adds to the large literature on immigration to the New World and assimilation of immigrants into North American labor markets. Hatton (1997), examining data from Michigan and California in the late nineteenth century, found that immigrants assimilated well in terms of earnings. Indeed for those immigrants that arrived as children, earnings were very similar to native-born workers once they reach adulthood, while adult immigrants from Britain actually earned more than the native-born in Michigan. The assimilation of immigrants to Canada in the early twentieth century has been examined by Green and MacKinnon (2001). They used a sample of the 1901 census to explore how quickly immigrants' earnings caught up with those of native-born, English mother-tongue Canadians. Even though British migrants were seen as "invisible immigrants" (p. 335), in that they faced the fewest barriers to assimilation such as language and legal system; nonetheless, English immigrants

¹ Note that informal insurance providers, such as burial societies, were often established by and for members of particular ethnic groups. In Section 5, we also provide an analysis of the insurance price paid by immigrants and do not find any significant deviation from the price paid by Canadians.

² Missing data on income reduce the number of observations to just below 40,000 in the baseline regressions. The main results presented in the article would remain consistent if we dropped the income measures and worked with the full sample of household heads (not reported).

assimilated slowly and achieve earnings parity only 28–49 years after immigration. In this article, we show that there existed an even slower rate of assimilation in relation to the purchase of life insurance. This may indicate that differences between immigrants and native-born Canadians were attributable not only to cultural, economic, and discriminatory factors, but are also possibly related to differing risk attitudes.

Second, this article contributes to research on historical insurance holding. A study conducted by [Di Matteo and Emery \(2002\)](#) is of particular relevance to this analysis due to the common period and country under examination. The study investigates the relationship between personal wealth and demand for life insurance, based on male probated decedents in Ontario in 1892. Consistent with theoretical literature on the demand for life insurance, and contrary to the findings in much of the empirical literature, wealth accumulation was found to be a substitute for market purchases of life insurance. Di Matteo and Emery's evidence suggests that households primarily demanded life insurance when they lacked accumulated reserves or wealth to provide self-insurance, often early in the life cycle. To some extent this study will draw on their analysis but will differ with respect to the specific research motivation and variables under scrutiny. The principal focus of this study is the relationship between insurance uptake and immigration. Any difference between the agrarian, newly settled West and the relatively urbanized East or Central Canada is also investigated. The additional information uncovered in this analysis can be combined with Di Matteo and Emery's investigation and should help deepen the understanding of the determinants of insurance demand during this period in Canada.

The rest of this study is structured as follows. In Section 2, a historical background of Canada in 1911 is presented. Section 3 reviews the literature on the demand for life insurance, while Section 4 introduces the data used. The results of our analysis are presented in Section 5, before Section 6 concludes.

2. Canada in 1911

The period from Confederation in 1867 to the beginning of the Great War was a time of significant economic and demographic change for Canada. The population more than doubled from 3.5 million in 1867 to 7.9 million by 1914. During the years 1901–1911 alone, the population grew from 5.4 million to 7.2 million. This growth was driven predominantly by high levels of immigration with an average annual immigration of around 150,000 over the period from 1901 to 1911 ([Canada Yearbook, 1911, 1914](#)). Immigrants came from all corners of the globe, but government immigration policy favored settlers from European countries.³ The vast majority of new settlers came from the British Isles due to the strong cultural and economic links that existed between Britain and her former colony. A principal reason for the high levels of immigration was a concerted effort on behalf of the Canadian government to extend its control over the western provinces, particularly the Prairie provinces of Alberta, Saskatchewan and Manitoba, by encouraging settlement there. In an effort to achieve this goal, the government passed the Dominion Lands Act in 1872. The act outlined that lands were to be given to settlers in return for the payment of a \$10 fee and the performance of specified duties—e.g., building a habitable residence and cultivating a certain area annually ([Regehr 2011](#)). Despite these efforts Canada actually experienced net emigration in the late nineteenth century ([Green and MacKinnon 2001](#)). However, the “Golden age

³ Those policies might also have been a response to an overall racial animosity of the Canadian population toward Asian immigrants ([Ward, 1990](#)).

of Canadian development” (p. 316) began at the turn of the twentieth century as immigration took off. Consequently, the population of the Prairie provinces increased dramatically; the populations of Alberta and Saskatchewan increased by more than 400 percent between 1901 and 1911 (Canada Yearbook, 1911). This increase, coupled with an expansion of the western railway network, led to an agricultural boom driven largely by the production of wheat. Canada became a major player on the world wheat markets with a 14 percent share of world wheat exports in 1914 (Solberg 1987, p. 36). The country also became a significant exporter of animal products, fishery products and minerals (New York Times 1912). However, the boom was not only driven by agriculture, with domestic investment and manufacturing also contributing to rapid economic growth (Bothwell *et al.* 1990).

Alongside these rapidly expanding sectors, Canada’s financial sector grew apace. The insurance sector in Canada was well developed by the beginning of the twentieth century (Drummond 1962). The value of life insurance in force in Canada rose from \$64 million (1900 Canadian dollars) in 1875 to \$679 million by 1910, while the total assets of Canadian life insurance companies rose from a value of \$118 million in 1901 to \$212 million by 1911 (Canada Yearbook, 1911).⁴ Total assets owned in 1911 by life insurance companies were valued 86 percent higher than the assets owned by the Canadian State. In comparison to the manufacturing industry: assets owned by life insurance companies were valued at 29 percent of the entire manufacturing sector in Canada (capitalization of manufacturing firms was equal to \$847 million in 1911, Canada Yearbook, 1911).

Insurance companies were also a major player in capital markets, lending more money in mortgages in the decade before the Great War than the designated mortgage companies, while at the same time becoming heavily involved in the Canadian bond market (Drummond 1962). The fact that the insurance industry in Canada had spread far and wide by the beginning of the twentieth century was noted by the author Arthur Granville Bradley

Insurance is a very prominent business in Canada, and Toronto is one of its chief headquarters, sending out troops of agents over the whole country as far as the Pacific coast. I know there are insurance agents in England from modest notices hanging here or there on the walls of shop or office, but in Canada you may travel with a whole smoking compartment full of them, and dine at tables in hotels where there is no one else ... I do not think there is a man of substance in Canada uninsured, not because prudence is a specially Canadian virtue, but in view of the number of insurance agents perennially on the warpath ... (Bradley 1903, p. 225)

Despite this seemingly intense competition, the insurance market in Canada continued to be profitable. In 1910, the net income on premiums paid by the insured was equal to \$28.9 million (1900 Canadian dollars). A further \$8.9 million income was obtained from investments on the capital markets. The total cash income of life companies was equal to \$39.7 million, which constitutes a remarkably high return on the companies’ total assets of 18.7 percent (Canada Yearbook, 1911).

The high profits earned by the life insurance companies led the public to believe that the accumulated premiums were not being invested in the best interests of the policy holders and that company directors were operating imprudently. As a result of this speculation, a Royal Commission on Life Insurance Companies was established to investigate these claims in 1906. The commission found evidence of improper management of funds by the life insurance

⁴ Nominal values deflated using Wholesale Price Indices from Mitchell (2007).

companies and recommended amendments to legislation to protect the policy holders' interests. The commission's report became the basis for the Insurance Act of 1910, which was designed to better regulate the growing Canadian insurance market (Bishop 1912).

The number of Canadian life insurance companies grew rapidly over the last few decades of the nineteenth century, increasing from one company (Canada Life) in 1870 to seventeen in 1900, although as in the United States, the industry remained concentrated (Davis and Gallman 2001, p. 431; Keller 1999). By 1911, the Canadian insurance market had a handful of dominant domestic players which operated alongside competitors from the United States and the United Kingdom. This competition induced Canadian companies to also increase their foreign operations. In 1914, some 40 percent of life insurance premiums were collected by foreign companies while Canadian life insurance companies received 32 percent of their premium income from abroad (Drummond 1962).

Life insurance in Canada was indeed an important financial asset, both as a form of income protection for households and to Canadian Capital markets as a source of funds for investment. The maturing of the population over the period of economic and geographic expansion increased the demand for insurance, while competition among the major companies boosted supply. As a result, the proportion of the population holding a life insurance policy steadily increased. According to Di Matteo and Emery (2002), 18 percent of Canadian males held life insurance in 1901. Based on the 5 percent census sample, 32 percent of male household heads held life insurance by 1911. When compared with other countries, the Canadian life insurance industry appears well developed relative to the most advanced economies of the time: the United States and the United Kingdom. Life insurance premiums per capita collected in Canada were only slightly lower than in the United Kingdom in 1911.⁵

3. Demand for life insurance

The demand for life insurance has commonly been linked with the motivation to accumulate assets. Life insurance is judged to be an asset similar in form to savings and is as such, important to a household's life time utility maximization strategy. The motivation to save or acquire insurance, as outlined by Di Matteo and Emery (2002), can be explained in three principal ways; the life-cycle motivation, the bequest motivation and the precautionary savings motivation. According to Di Matteo and Emery (2002, pp. 450–453), the bequest motive is defined as the accumulation of assets during working years in order to provide offspring with an inheritance, while precautionary savings is defined as the accumulation of assets to deal with short-term unforeseen economic events. The life-cycle theory predicts that households wish to smooth consumption over their life time and that individuals accumulate assets during their working lives and consume these assets in retirement (Jappelli and Modigliani 2006). The idea of a hump-shaped wealth-age curve would imply that savings would be low, perhaps even negative, early on in the life cycle. This form of life-cycle asset accumulation behavior has been identified by Di Matteo (1997) in Canadian data from the late nineteenth century. Life-cycle savings motivations likely gained in importance as the number of individuals reaching retirement age increased over the course of the nineteenth century. Indeed the transition to a "modern" definition of retirement may have taken place earlier than was once thought (Carter and Sutch 1996) (table 1).

⁵ However, both countries had less extensive life insurance coverage than the United States at this time, as can be seen in table 1.

Table 1. *Life insurance premium income per capita (US\$), 1911*

	Canada	United States	United Kingdom
Total life premium income	31,619,626	625,900,000	223,663,500
Population	7,206,643	93,863,000	44,916,000
GDP per capita (1990 Int. GK\$)	4,213	5,406	4,709
Premium income per capita	4.39	6.67	4.98

Sources: Canada Yearbook (1912), United States Bureau of the Census (1976), Sheppard (2013), Flandreau and Zumer (2004), Powell (2005), Maddison (2013).

This study has a particular focus on the potential difference in insurance demand between self-selecting migrants relative to nonmigrants. On the one hand, demand for life insurance may be greater among immigrants as their potential for self-insurance would be diminished. Immigrants would likely have less capacity for informal risk sharing as private networks are often initially less extensive. On the other, demand for life insurance may be lower for immigrants if the individuals who emigrate have a below average level of risk aversion. Jaeger *et al.* (2010) show this to be the case for contemporary German migrants: individuals who are relatively willing to take risks show a significantly higher probability to migrate. The authors further suggest that the United States may enjoy a higher degree of labor mobility today in part due to the fact that it has experienced many waves of immigrants who are likely to have been risk takers. A study by Di Matteo (1996) of the wealth holdings of Irish-born and non-Irish-born in Ontario in 1892 finds no connection between birthplace and wealth overall, but there is an indication that the Irish-born were less likely to hold financial assets. Furthermore, Amuedo-Dorantes and Pozo (2002) find that immigrants have a lower propensity to accumulate precautionary savings, and it is possible that the demand for insurance follows a similar pattern. However, a decrease in precautionary savings may be due to the impact of remittances on saving capabilities. It might be expected then that the length of time since immigration would diminish the influence of both these effects, as more extensive family risk sharing networks evolve and immigrants become assimilated. A greater appreciation of attitudes toward risk among immigrants and their assimilation could therefore potentially lead to an improved understanding of differences in labor mobility across countries and over time.

A number of factors that potentially influence the demand for life insurance have been identified; factors that would likely have been different for immigrants and native-born. Theories of insurance demand predict that insurance purchase is related to the motivation to preserve income streams, so that the individual can provide for himself and his family. Income streams could be interrupted by illness, accidents or other unforeseen economic hardships. Insurance can protect households from a collapse in their consumption that would otherwise follow a break of income. Savings, often referred to as self-insurance, could also provide this function. However, savings take time to accumulate, which for recent immigrants is a particular constraint. As such, immigrants might be expected to have greater need for insurance to substitute for savings. Likewise insurance would represent a better instrument by which to preserve future household consumption early in the life cycle and implies that insurance purchase would be negatively related to age (Hammond *et al.* 1967). The bequest motivation for the acquisition of life insurance can be seen as an extension of the life cycle motivation. As transfers across generations link the life cycle of the household head to that of its dependents, the relevant utility maximizing economic agent may be the household itself and not the household head. The purchase of life insurance is seen as a transaction made on behalf of the insured dependents, where the principal intention is to provide offspring with an economic safety net of their own

(Lewis 1989). It is not clear that the bequest motivation would influence immigrants and native-born differently.

Household income is also considered to have a significant effect on the level of life insurance demand. The relationship between income and the demand for life insurance is, however, argued to be complex and depends on the degree of household risk aversion and how it changes with income (Cleeton and Zellner 1993). Households in which the income of the household head represents the only stream of income would be expected to have a higher demand for life insurance while households with more than one income—and therefore less reliant on the income of the household head—would be likely to have less need to insure the household head (Di Matteo and Emery 2002). This theory finds support in evidence provided by Duker (1969) and Kantor and Fishback (1996) with respect to the insurance demand of households with working wives. Since differences existed between the income and occupations of immigrant and native-born, we control for these variables in the empirical analysis.

A further variable that is considered to affect the level of life insurance demand is the level of education, as it is associated with a better understanding of the benefits of life insurance (Truett and Truett 1990). A variable indicating whether the respondent could read and write is therefore included in the analysis, as is a variable indicating whether or not individual could speak an official language.

Whether the respondent lived in an urban area is also likely to have affected both the supply and demand for insurance. Those living in urban areas were more likely to be reliant on the labor income of the household head than farmers and farm-workers (Di Matteo and Emery 2002), while access to insurance services would have been less costly for urban dwellers. Immigrants too tended to be concentrated in urban areas. To further examine the supply of insurance, a variable is created indicating the concentration of insurance agents and brokers within the census district. As local networks are expected to have been important to insurance agents in identifying potential customers, we also include a measure of the number of insurance agents and brokers of the same ethnicity as the individual that reside in the same district. The role of connections is also recognized by a contemporary source that gives advice to insurance agents in the United States: “The securing of an application depends upon the creation of confidence which may be difficult to effect in the case of an entire stranger” (Spectator Company 1916, p. 33). As such we hope to capture an informal, yet potentially important, aspect of insurance supply that may have particular relevance for immigrants.⁶

4. Data

To estimate the demand for insurance in early twentieth century Canada, we make use of the 5 percent sample of the 1911 census of Canada constructed by the CCRI. The questions that make the 1911 Canadian Census unique and therefore facilitate our analysis are, of course, those relating to insurance. The enumerators were asked to record the details of an individual’s life insurance holdings, namely the total value of the life insurance policies in force and the total cost per year of premiums on all insurance policies. The insurance holdings include both formal contracts signed with insurance providers and informal agreements entered with fraternal organizations, burial societies and similar institutions.

⁶ Identified when occupation is described as “Insurance agents and brokers” and totalled over the same ethnicity as the individual (as indicated by the racial or tribal origin of individual given in census), divided by population and expressed for each census district per 1,000 citizen.

The sample consisting of data for household heads is summarized in table 2. The first three columns describe native-born Canadians in the sample, while the last three provide information for the subsample of immigrants.⁷ Canadian-born individuals encompassed by the sample are in 91 percent of cases male and have an average age of 45 years. Eighty-one percent of native-born household heads are reported as being married. The average number of dependent children—that is, children aged 16 or under—is equal to 1.8 per household. Approximately 74 percent of the sample was born in Canada while the remaining immigrated predominantly from England, followed by the United States, Scotland and Ireland. The subsample of immigrants reveals very similar characteristics to the native-born sample, with the main differences that immigrants were somewhat less likely to be married and had fewer dependent children. For immigrants the year of arrival in Canada was also recorded. The sample data indicate that the average number of years since immigration was around 11 years. The variables of most importance to this analysis are those concerning life insurance holdings. Thirty-one percent of the native-born subsample reported holding a life insurance policy with an average value of \$2029 and an average annual premium of \$86. The proportion of immigrants' holding life insurance is about 24 percent. The average value of life insurance as well as the premium for life insurance are somewhat lower for immigrants than for those born in Canada, however the median value of an insurance policy was identical.⁸

The occupation of the household head is separated into twelve categories according to the classification method provided by the census authorities. There appears to be little difference between the occupational structure of immigrants and native-born Canadians, although there were likely to have been differences within these broad sectoral classifications.⁹ According to this classification, 45 percent of the native-born subsample was recorded by the enumerator as working in agriculture.¹⁰ Tenant farmers and land-owning farmers had a degree of income risk protection, in so much as other members of the household could assist in farm work. As such, both types of farmers could avail of risk management and diversification techniques that to some extent decreased their exposure to income shocks (Stead 2004). The direction of the influence of being a farmer on the demand for insurance might presumably be expected to be similar for both tenant and land-owning farmers. Additionally, farm land can be seen as an asset and hence a land-owning farmer could rely on that land as a substitute asset to insurance, therefore having less need for formal insurance contracts.¹¹ The subsample of immigrants discloses a somewhat lower share of farmers than the sample as a whole. As the title “farmer” tells us little of the economic position of the household head, in the analysis that follows a variable is constructed that identifies farmers that were self-employed and also employed others, in this way separating farmers that were likely to have been more affluent from poorer farmers.

In this study, in addition to occupation controls, we have records that indicate the total household income for 57 percent of households.¹² Interestingly, incomes are higher on average for immigrants than for native-born Canadians. As farmers did not usually report income on their returns, the data on income are somewhat biased toward nonfarmers, who were more

⁷ See footnote 11 for details.

⁸ The difference between the proportion of immigrants and Canadians holding life insurance is equal to 5.6 percentage points and is highly statistically significant.

⁹ A more fine-grained division of occupation was included in regressions not reported here. The main results of this article however remain unchanged.

¹⁰ Thirty-eight percent of household heads were classified as “Farmer (owners and tenants)”.

¹¹ As the enumerators were not instructed to differentiate between farmers who owned their own farm and tenant farmers, the limitations of the data prevent an examination of this effect in isolation. See Offer (1991) for a discussion of determinants of farm tenure in England.

¹² Household income includes all income from family members and non-family members of the household.

Table 2. *Descriptive statistics*

	Native-born Canadians			Immigrants		
	Mean	Std. dev.	Obs.	Mean	Std. dev.	Obs.
Panel A: Household controls						
Male	0.91	0.28	53,854	0.94	0.24	18,509
Age	45.29	14.42	53,854	42.48	14.24	18,509
Married	0.81	0.39	53,854	0.78	0.42	18,509
Number of dependent children	1.83	2.07	53,854	1.49	1.84	18,509
Panel B: Country of birth and migration						
Canada	1.00	0.00	53,854			
England				0.34	0.47	18,509
United States				0.15	0.36	18,509
Scotland				0.11	0.31	18,509
Ireland				0.06	0.24	18,509
Russia				0.05	0.22	18,509
Germany				0.03	0.17	18,509
Austria				0.03	0.18	18,509
Sweden				0.02	0.14	18,509
Italy				0.02	0.13	18,509
China				0.14	0.35	18,509
Rest of Europe				0.01	0.10	18,509
Rest of World				0.02	0.13	18,509
Years Since Immigration				11.44	12.52	16,602
Adult internal migrant	0.14	0.35	53,854			
Panel C: Life insurance						
Life Insurance	0.31	0.46	53,854	0.24	0.43	18,509
Value of Life Insurance (\$)	2,029	3,593	16,842	1,955	4,916	4,477
Premium Life Insurance (\$)	86	364	13,820	82	365	3,901
Insurance supply proxy	0.25	0.18	53,684	0.16	0.15	18,478
Panel D: Occupation						
Occ 0—Agriculture	0.45	0.50	47,609	0.40	0.49	16,605
Occ 1—Building trades	0.09	0.29	47,609	0.40	0.49	16,605
Occ 2—Domestic and personal service	0.03	0.18	47,609	0.10	0.30	16,605
Occ 3—Civil and municipal service	0.03	0.18	47,609	0.04	0.19	16,605
Occ 4—Fisheries and hunting	0.02	0.13	47,609	0.04	0.20	16,605
Occ 5—Forestry and lumbering	0.04	0.20	47,609	0.01	0.09	16,605
Occ 6—Manufactures (mechanical)	0.06	0.23	47,609	0.03	0.16	16,605
Occ 7—Manufactures (Food & clothing)	0.05	0.21	47,609	0.07	0.26	16,605
Occ 8—Mining	0.02	0.13	47,609	0.05	0.22	16,605
Occ 9—Professional pursuits	0.03	0.16	47,609	0.04	0.19	16,605
Occ 10—Trade and merchandising	0.11	0.31	47,609	0.03	0.17	16,605
Occ 11—Transportation	0.08	0.27	47,609	0.11	0.31	16,605
Self-employed-farmer-employer	0.37	0.48	53,854	0.32	0.47	18,509
Income of household head (last year) (\$)	735	903	23,016	772	983	8,654
Total income of household (last year) (\$)	981	1425	31,103	1410	2135	10,816
Second income	0.21	0.41	53,854	0.26	0.44	18,509

(Continued)

Table 2. *Continued*

	Native-born Canadians			Immigrants		
	Mean	Std. dev.	Obs.	Mean	Std. dev.	Obs.
Household-head share of household income (last year) (\$)	0.82	0.27	23,013	0.76	0.32	8,650
Panel E: Literacy and language						
Read and write	0.89	0.31	50,541	0.92	0.27	18,509
Speaks English	0.76	0.43	53,854	0.86	0.34	18,509
Speaks French	0.32	0.46	53,854	0.05	0.21	18,509
Panel F: Religion						
Catholic	0.41	0.49	53,854	0.19	0.39	18,509
Anglican	0.11	0.31	53,854	0.25	0.43	18,509
Methodist	0.18	0.39	53,854	0.12	0.32	18,509
Baptist	0.06	0.24	53,854	0.04	0.19	18,509
Presbyterian	0.17	0.38	53,854	0.16	0.37	18,509
Protestant	0.00	0.05	53,854	0.01	0.11	18,509
Lutheran	0.01	0.11	53,854	0.09	0.29	18,509
Jewish	0.00	0.04	53,854	0.03	0.18	18,509
Other religion	0.04	0.21	53,854	0.11	0.31	18,509
Panel G: Geography						
Urban	0.43	0.50	53,854	0.52	0.50	18,509
Alberta	0.03	0.17	53,854	0.15	0.36	18,509
British Columbia	0.03	0.17	53,854	0.14	0.34	18,509
Manitoba	0.04	0.20	53,854	0.13	0.33	18,509
New Brunswick	0.06	0.23	53,854	0.01	0.11	18,509
Nova Scotia	0.08	0.27	53,854	0.02	0.15	18,509
Ontario	0.39	0.49	53,854	0.30	0.46	18,509
Prince Edward Island	0.02	0.13	53,854	0.00	0.04	18,509
Quebec	0.30	0.46	53,854	0.09	0.29	18,509
Saskatchewan	0.04	0.21	53,854	0.17	0.37	18,509

Source: Five percent sample of *Census of Canada (1911)*, CCRI.

Notes: Sample sizes differ due to missing data for particular variables (e.g., insurance premiums); 5% Sample, Household-heads only.

likely to purchase a life insurance policy. A similar problem is encountered by [Di Matteo and Emery \(2002\)](#), who do not have any income records and are forced to rely on the occupation variables that provide some approximation for the missing variable. For immigrants, the income of the household head contributed, on average, 76 percent of total household income, while for native-born this figure was 82 percent.

Panel E reveals that both native-born Canadians and immigrants were highly literate. Eighty-six percent of immigrants spoke English. Only 5 percent spoke French compared with 32 percent for the native-born. The greatest differences between the native-born subsample and the subsample of immigrants can be observed with respect to religion (Panel F). Catholics are the most numerous group in the full sample, with the rest being mainly Methodists, Presbyterians or Anglicans. Immigration from other countries such as Catholic France was much less significant. Consistently, the subsample of immigrants includes fewer Catholics and more Anglicans, Lutherans, Jews and other religions. Settlement patterns also

differed between the native born and the immigrant population. Immigrants were more likely to live in urban areas and were more concentrated in the western provinces of Alberta, British Columbia, Manitoba and Saskatchewan. These geographical differences and whether this is related to the demand for life insurance will be explored in more detail in the next section.

5. Empirics

To uncover the factors influencing whether a household head possessed a life insurance policy in Canada in 1911, a binary response approach is required. In this formulation the outcome of the discrete choice, to hold an insurance policy or not, is viewed as a reflection of an underlying Probit model. The model is estimated using maximum likelihood estimation, and marginal effects are computed at the means of the independent variables.¹³

The results are presented in Columns (1)–(4) of table 3. The first column summarizes the point estimates for a regression with a set of control variables that potentially influence the decision to obtain life insurance, as has been discussed in Section 3. Of main interest is the indicator function *Immigrant*, which takes the value one if the individual immigrated to Canada as an adult and zero otherwise.¹⁴ The point estimate is highly significant and indicates that immigrants were about 12.8 percentage points less likely to hold life insurance than native-born Canadians, all else being equal. It can be also observed that the remaining control variables remain consistent with expectations and previous research; in particular with [Di Matteo and Emery \(2002\)](#). The probability of holding life insurance increases if the head of the household is male or married. The estimated coefficients on the quadratic age polynomial indicate that the probability of holding life insurance increases with age, albeit at a decreasing rate.¹⁵ Each additional dependent child (aged 16 or under) is not statistically related to the probability of holding life insurance. One may speculate that the absence of a significant association is due to the presence of more than one contradictory force at play. On one hand, having more children is a substitute for insurance (as children can provide support for parents in old age), leading to lower insurance demand. On the other, having children makes your life more valuable (as one needs to cater for children; children are also those who obtain the insurance payment in case of death), therefore higher demand for insurance. A further exploration of this finding, although interesting, lies however beyond the scope of this article.¹⁶

¹³ A set of diagnostics has been conducted. First, an OLS regression is implemented using the same dependent and independent variables as the initial Probit model, and the variables are checked for collinearity. Judging on variance inflation factors, no serious problems with collinearity among these variables have been detected. Second, a link test is carried out in order to check for a specification error such as omitted variables. The test confirms that meaningful predictors have been chosen, and as the link test is not significant, the model is quite unlikely to be misspecified. Third, a Wald χ^2 -test is conducted, and a resulting *P*-value which is significant at the 1 percent level indicates that the model has at least some degree of explanatory power. Finally, Hosmer and Lemeshow's goodness-of-fit test indicates that the model fits the data well.

¹⁴ We assume that the decision to migrate would not have been made by the individual if they were below 16 years of age. This specification also addresses the issue of "Home Children" immigrants whose passage was subsidized. As many as 80,000 children emigrated from Britain to Canada with the backing of charitable organizations between 1868 and 1924, with approximately 30,000 arriving between 1901 and 1913 ([Parr, 1994](#); *Canada Yearbook*, 1912, p. 46). It is estimated that perhaps 12% of immigrants living in Canada in 1901 were former Home Children ([Green et al., 2002](#)).

¹⁵ An alternative way of measuring age effects would be to include a full set of age dummies to control for life cycle changes. This approach delivers very consistent estimates (not reported).

¹⁶ We have also tried numerous alterations in order to capture the effect of children. Including an indicator function for the presence of children or a full set of dummies for each number of children does not yield any significant children effects, as does controlling for the age of dependent children (not reported).

Table 3. *The demand for life insurance and immigration*

	Life insurance			
	Probit			
	(1)	(2)	(3)	(4)
Immigrant	-0.128*** (0.00616)		-0.111*** (0.00651)	
United States		-0.0648*** (0.0136)		
England		-0.0823*** (0.00793)		
Ireland		-0.0630*** (0.0172)		
Scotland		-0.0346** (0.0137)		
Germany		-0.126*** (0.0256)		
Italy		-0.312*** (0.0130)		
Russia		-0.288*** (0.0120)		
Sweden		-0.170*** (0.0320)		
Austria		-0.304*** (0.0145)		
Rest of Europe		-0.174*** (0.0119)		
China		-0.335*** (0.0181)		
Rest of world		-0.181*** (0.0274)		
Male	0.214*** (0.0136)	0.219*** (0.0131)	0.216*** (0.0134)	0.209*** (0.0138)
Married	0.128*** (0.00852)	0.123*** (0.00858)	0.126*** (0.00854)	0.133*** (0.00843)
Age	0.0206*** (0.00146)	0.0198*** (0.00145)	0.0199*** (0.00146)	0.0214*** (0.00146)
Age ²	-0.00025*** (1.62e-05)	-0.00023*** (1.61e-05)	-0.00024*** (1.61e-05)	-0.00025*** (1.61e-05)
Dependent children	-0.000435 (0.00146)	0.000878 (0.00147)	0.00154 (0.00148)	-0.00206 (0.00145)
Literate	0.183*** (0.00847)	0.173*** (0.00869)	0.175*** (0.00871)	0.195*** (0.00815)
Speaks official language	0.139*** (0.0112)	0.0984*** (0.0124)	0.112*** (0.0121)	0.128*** (0.0115)
Urban agglomeration	0.113*** (0.00688)	0.115*** (0.00687)	0.115*** (0.00688)	0.114*** (0.00681)
Household income	0.0287*** (0.00532)	0.0305*** (0.00530)	0.0281*** (0.00549)	0.0275*** (0.00519)
(Household income) ²	-0.00105*** (0.000406)	-0.00111*** (0.000403)	-0.000993** (0.000417)	-0.00104*** (0.000394)
Farmer	0.0140	0.0186	0.0142	0.0113

(Continued)

Table 3. *Continued*

	Life insurance			
	Probit			
	(1)	(2)	(3)	(4)
	(0.0145)	(0.0145)	(0.0145)	(0.0145)
Insurance supply	0.132***	0.0710***	0.111***	0.0573***
	(0.0180)	(0.0191)	(0.0188)	(0.0170)
Anglican			0.00902	
			(0.00921)	
Methodist			0.0705***	
			(0.00966)	
Baptist			0.0385***	
			(0.0132)	
Presbyterian			0.0710***	
			(0.00951)	
Protestant			0.0192	
			(0.0396)	
Lutheran			-0.0479***	
			(0.0186)	
Jewish			-0.204***	
			(0.0185)	
Other			-0.0165	
			(0.0134)	
Immigrant * East				-0.0577**
				(0.0256)
Immigrant * Center				-0.107***
				(0.00741)
Immigrant * West				-0.162***
				(0.00987)
East				-0.143***
				(0.00813)
West				-0.0256**
				(0.0100)
Province controls	Yes	Yes	Yes	
Occupation controls	Yes	Yes	Yes	Yes
Observations	37,977	37,977	37,977	37,977
Pseudo-R ²	0.126	0.133	0.131	0.122

Note: Robust standard errors are in parentheses. Omitted categories—Country (column 2): Canada, religion: Roman Catholic, region: Center.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.

Being able to read and write increases the probability of holding life insurance by around 18 percentage points. A higher probability is also observed for those who speak an official language or live in urban agglomerations.¹⁷ The probability of holding life insurance increases with income at a decreasing rate, while the probability of holding life insurance is higher for most

¹⁷ In an identical regression (not reported) the “official language” variable was separated into those who could speak English and those who could speak French. The results indicate that speaking English was associated with a higher probability of holding life insurance than speaking French.

professional categories compared with employment in agriculture, the baseline category (not reported).¹⁸ Being a self-employed farmer–employer has an insignificant effect on the demand for life insurance.¹⁹ The point estimate for the introduced insurance supply proxy is positive and statistically significant. This indicates that having more insurance agents of the same ethnicity in your district increased the probability that you held life insurance. This is indeed an interesting result as it suggests that agents were recruiting from within their own ethnic groups. Furthermore, the result provides support for the advice given to insurance agents by the *Spectator Company* (1916, p. 33) that “connection is a valuable factor” in finding prospective insurance buyers. Finally, the regression also includes a set of indicators for each province with Ontario as the reference category (not reported).²⁰

Next, we estimate a further regression with a set of controls for the country of birth. We use Canadian-born individuals as the base category and a set of indicator functions for the remaining countries of origin. In Column (2), the coefficients on country of origin are always negative and statistically significant. The smallest marginal effects of between 4 and 8 percentage points are found for individuals born in Scotland, Ireland, the United States and England. This is followed by Germany (12.6 percent), Sweden (17.0 percent), the Rest of Europe and Rest of World categories (each ca. 18 percent), while the remaining countries for which we have a reasonable number of observations are 30 percentage points below the probability of holding insurance by Canadians. One could suspect that the results are to some extent affected by unobserved preferences and social norms with regard to insurance demand that may differ across countries and cultures. However, given the significant difference between immigrants born in the United States and Canada, and the high degree of similarity between these two countries, we believe, the results are attributable to more than simply to unobserved cultural differences, and interpret them as being suggestive of a lower level of risk aversion among immigrants. Furthermore, the relatively small difference for the United States and the British Isles compared with other parts of the world might be reflective of the fact that cultural and geographic distance are also important. The remaining variables in this model are consistent with the specification presented in Column (1).

In Column (3), further controls for religious background of the respondent are included. This step is motivated by *Di Matteo and Emery (2002)* who found heterogeneity in insurance demand depending on religious background. The authors speculate that Roman Catholics might have been less well-informed about the benefits of life insurance, as they were somewhat less literate than the average, and hence would demand less insurance. Since in our model we account for literacy, this argument does not apply.²¹ Furthermore, since Anglican and Protestants were substantially more influential in the banking and finance sector, it could be

¹⁸ The only insignificant difference is found between occupations in agriculture and the fisheries and hunting professions, probably the most similar professions. The smallest significant differences are disclosed for the mining, followed by building trades; both professions appear to be particularly risky and may hence attract unusually risk-friendly workers. An alternative way of measuring income is by accounting for the share of family income that the household-head earns. We show in *table A1*, Appendix A, that the inclusion of a variable measuring the household-head share of household income does not change the results. Since this test leads to a rather large drop in the number of observations, we report this model only as a robustness check.

¹⁹ We have also conducted the analyses separately for subsamples of farmers and non-farmers. The results remain consistent within each subsample (not reported).

²⁰ We do not present the differences across provinces in the baseline specification and refer the reader to *table A2*, Appendix A.

²¹ Another possible unobserved driver of the results in *Di Matteo and Emery (2002)* is the origin of the individual, which is not included in their main specification and yet, as observed here, there exist a relatively large differences in religion between Canadians and immigrants (*table 2*).

further the case that they are more aware of the diversification advantages of the life insurance asset, although a confirmation of this explanation is unfortunately not possible in our specification. The influence of religion on the probability of holding life insurance is positive and statistically significant only for Methodists, Baptists and Presbyterians, with Roman Catholics as the base category. The results also indicate that Jews and Lutherans demanded less insurance than Catholics, whereas Anglican and Protestants exhibit insurance demand that is indistinguishable from Catholics. Nonetheless, most importantly for the aim of this article, it can be also be observed that in this specification the coefficient for immigrants remains very consistent in sign, size, and significance compared with the baseline model from Column (1). This supports the view that demand for insurance is influenced by whether the individual was a migrant or Canadian-born.

Each specification so far includes individual province fixed effects. In Column (4), we group all nine covered provinces into three regions: the East (Nova Scotia, Prince Edward Island and New Brunswick), the Center (Quebec and Ontario) and the West (Manitoba, Saskatchewan, Alberta and British Columbia).²² For simplicity we now include only dummies for the East and West, with Center as the baseline category. The marginal effects of East and West are both negative and imply a demand for life insurance that is 14.3 or 2.6 percentage points lower than the Center, respectively. At the same time, we introduce interaction terms between being an immigrant and the geographic regions where the immigrant resides. This informs us about the life insurance demand by immigrants in the studied regions relative to all Canadian-born respondents. The emerging point estimates are all negative and highly significant. Immigrants living in the Western provinces are the least likely to hold life insurance (16 percentage points less than Canadian-born), followed by the central provinces (11 percentage points), whereas a lower probability of only about 6 percentage points characterizes the Eastern provinces. This result highlights the differences between the settlement patterns of immigrants, whereby newly arrived immigrants were more likely to settle in the west. A slow assimilation process may therefore go some way to explain these geographic differences.²³

In order to enable visual inspection of the results, we construct figures based on Monte Carlo simulation techniques using a specification with the set of controls shown in Column (1) of table 3²⁴. Figure 1 illustrates how the probability of holding life insurance changes over the lifetime for individuals of various nationalities. This visualizes that immigrants in general have lower probabilities of holding life insurance. It also shows that life insurance holding peaks at around age 45 for all nationalities before declining to below 10 percent by age 85. Immigrants from countries such as the United States, Scotland and England display a similar relationship between life insurance and age while for countries such as Russia and China, the relationship is flatter and less hump-shaped.

We next direct our attention to the issue of assimilation and extend the specification by the time that had elapsed since immigration. Following Green and MacKinnon (2001), we set

²² Quebec and Ontario were the two largest provinces in terms of population and also the most urbanized, hence they are grouped together in this context. In table A3, Appendix A, we estimate separate models for the subsamples of Ontario, Quebec, Eastern or Western provinces (Columns (1)–(4)). We also conduct further subsampling into urban only or rural only respondents (Columns (5) and (6)). It can be viewed that the lower intake by immigrants is consistent in sign and significance in each of these additional specifications.

²³ For example, immigrants to Saskatchewan and Alberta arrived on average around 7–8 years prior to 1911, while immigrants in New Brunswick and Nova Scotia arrived on average 28 and 17 years previously, respectively. The corresponding figures for other provinces are Ontario (25 years), Quebec (16 years), Manitoba (13 years), British Columbia (12 years), New Brunswick (28 years) and Prince Edward Island (43 years).

²⁴ Using *Clarify* software (Tomz *et al.* 2003).

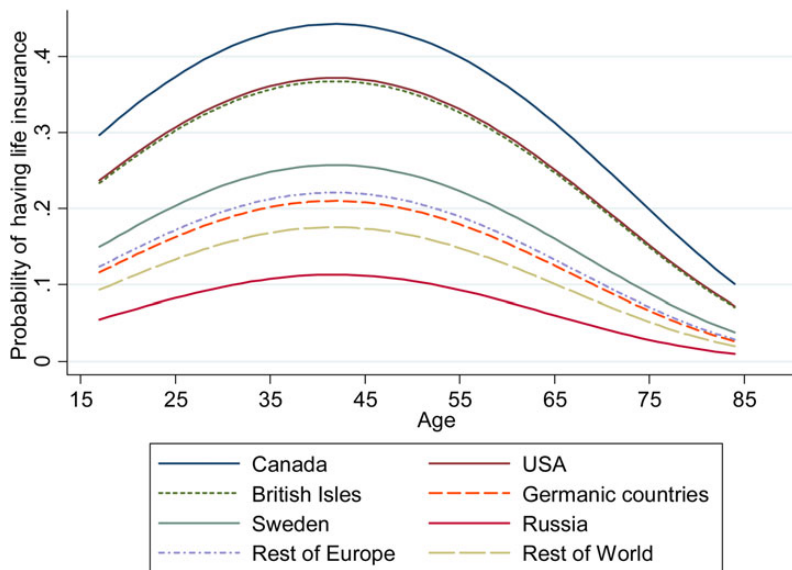


Figure 1. *Probability of having life insurance and age (by country of origin).*

Note: *Probabilities of having life insurance are obtained by the means of Monte Carlo simulation techniques and based on the model outlined in Column (2) of table 3.*

the years since immigration variable equal to zero for those born in Canada. The coefficient on this variable can be thus interpreted as the assimilation effect (i.e., no assimilation effect estimated for Canadians). The identification therefore allows the entry effect to vary by place of birth, but imposes a constant assimilation effect (coefficient on years since migration). Column (1) in table 4 reports the baseline specification extended by the measure of time since immigration. The disclosed point estimate is positive and implies a one percentage point increase in insurance demand for every year that elapsed since immigration to Canada; the effect is however nonlinear and occurs at a diminishing rate. We next estimate two linear regressions with the logged value of life insurance and logged income as the dependent variable, respectively. This allows us to estimate, in analogy to Green and MacKinnon, years to income equality for immigrants from any nation and then compare it with years to equality in insurance value. Time to assimilation in either of the variables is calculated as the negative ratio between the coefficient estimated for a nationality group divided by the assimilation effect. As can be viewed in Column (2), the implied years to equality of life insurance value to a native-born person (entry effect divided by assimilation effect) are fairly substantial. For example, for English-born immigrants time to equality is about 25 years; at the same time, income equality is reached within about 20 years. The fastest assimilation time can be observed for US-born immigrants who reach equality of insurance value within about nine years. Interestingly, according to our regression, income of immigrants from the United States is actually higher than that of Canadians. Comparing the results with Green and MacKinnon's earnings equality, which is reached within roughly seven years, it takes two additional years to reach equality in insurance value. One might expect that assimilation of US-born would be rapid, since their background matched closely that of the resident population, but this appears not to have been the case. Again, the persistent gap in insurance demand (and not in earnings) may be interpreted as a

Table 4. *Life insurance demand and assimilation*

	Life Insurance Probit (1)	ln (value of life insurance) OLS (2)	ln (income) OLS (3)
Years since immigration	0.0106*** (0.00104)	0.0448*** (0.00367)	0.0110*** (0.00157)
(Years since immigration) ²	-0.000107*** (2.01e-05)	-0.00048*** (7.15e-05)	-0.00013*** (3.30e-05)
United States	-0.158*** (0.0135)	-0.392*** (0.0583)	0.0215 (0.0272)
England	-0.181*** (0.00953)	-1.117*** (0.0447)	-0.215*** (0.0155)
Ireland	-0.196*** (0.0151)	-0.974*** (0.0758)	-0.256*** (0.0307)
Scotland	-0.135*** (0.0138)	-0.874*** (0.0531)	-0.116*** (0.0205)
Germany	-0.233*** (0.0190)	-0.717*** (0.110)	-0.249*** (0.0466)
Italy	-0.335*** (0.00836)	-1.129*** (0.188)	-0.251*** (0.0364)
Russia	-0.319*** (0.00852)	-0.808*** (0.118)	-0.203*** (0.0323)
Sweden	-0.240*** (0.0247)	-0.968*** (0.153)	-0.0401 (0.0575)
Austria	-0.327*** (0.0101)	-0.602*** (0.134)	-0.289*** (0.0397)
Rest of Europe	-0.263*** (0.00993)	-0.916*** (0.0690)	-0.206*** (0.0243)
China	-0.350*** (0.00947)	-1.509*** (0.0698)	-0.466*** (0.0767)
Rest of World	-0.252*** (0.0214)	-0.851*** (0.136)	-0.322*** (0.0492)
Male	0.224*** (0.0130)	1.005*** (0.106)	0.581*** (0.0340)
Married	0.124*** (0.00873)	0.0301 (0.0330)	0.108*** (0.0150)
Age	0.0197*** (0.00152)	0.0328*** (0.00513)	0.0304*** (0.00212)
Age ²	-0.000247*** (1.69e-05)	-0.00036*** (5.95e-05)	-0.00037*** (2.44e-05)
Dependent children	0.000316 (0.00149)	-0.0129*** (0.00446)	-0.00288 (0.00215)
Literate	0.173*** (0.00876)	0.460*** (0.0467)	0.252*** (0.0141)
Speaks official language	0.0935*** (0.0127)	0.0771 (0.0512)	0.174*** (0.0190)
Urban agglomeration	0.114*** (0.00695)	0.0183 (0.0221)	0.274*** (0.00983)
Household income	0.0306*** (0.00519)	0.127*** (0.0128)	

(Continued)

Table 4. *Continued*

	Life Insurance Probit (1)	ln (value of life insurance) OLS (2)	ln (income) OLS (3)
(Household income) ²	-0.00111*** (0.000394)	-0.00204** (0.000946)	
Farmer	0.0171 (0.0146)	0.0904* (0.0473)	-0.0212 (0.0245)
Insurance supply	0.0617*** (0.0195)	-0.176*** (0.0591)	
Second income			0.0418*** (0.00819)
Province controls	Yes	Yes	Yes
Occupation controls	Yes	Yes	Yes
Observations	36,911	14,313	29,932
R ²	0.139	0.195	0.265

Note: Robust standard errors are in parentheses. Column (1) reports the pseudo-R² coefficient. Columns (2) and (3) include a constant (not reported). Omitted categories—country: Canada.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.

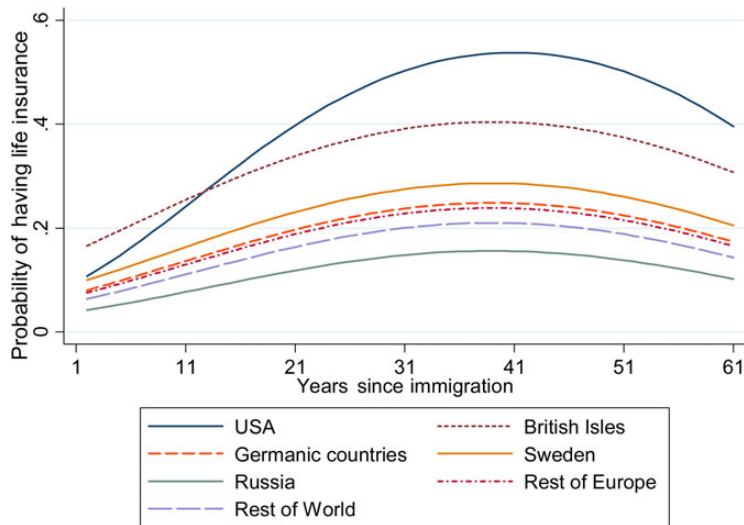


Figure 2. *Probability of having life insurance and years since immigration.*

Note: Probabilities of having life insurance are obtained by the means of Monte Carlo simulation techniques and based on the model outlined in Column (1) of table 4.

sign of varying risk attitudes between migrants and nonmigrants. The assimilation process is also significant for immigrants from other parts of Europe or other parts of the world and lasts typically around 20 years.

Figure 2 presents the probability of owning life insurance by immigrants as a function of years that elapsed since their arrival in Canada, while holding all other variables at their mean. It can be observed that immigrants increase their life insurance holdings over a long time period lasting

around 45 years after their arrival in Canada. The demand, however, begins to fall for individuals who immigrated more than around five decades ago.

These interpretations must be made, however, under the cautionary note of a limited number of observations for individuals who immigrated a very long time ago. Furthermore, since we have only a cross-section database at our disposal, two important biases arise: cohort effects and survivorship bias. We are not able to illuminate to what extent the concave relationship between insurance holdings and the time that elapsed since immigration is caused by cohort heterogeneity. Such cohort effects could be a result of, for example, some unobservable differences between generations. In addition, it is possible that due to some unobserved reasons, certain types of people have died younger and if their unobserved characteristics are correlated with life insurance holdings, our estimates would be biased. Arguably, the inclusion of a wide set of control variables to some extent mitigates such a bias; nonetheless any interpretation of these results has to be undertaken with care.²⁵

A principal aim of this research is to uncover the level of demand for life insurance among migrants relative to nonmigrants. The results so far indicate that, on average, immigrants are likely to have a lower level of demand for life insurance. A related question is whether internal migrants are also characterized by a lower insurance demand. Table 5 presents results for the subsample of Canadian-born household heads. Column (1) contains a dummy variable to identify whether the person has been born in a different province than where he/she is surveyed. The coefficient on this variable is negative, however very close to zero and statistically insignificant. The remaining control variables are very robust for the subsample of Canadian-born.

We next exploit geographic information on the origin and destination of the internal migrants and, in analogy to the previous approach, we group provinces into three regions: the East, Center and West. The specification presented in Column (2) reports not only the effect of the region of residence, but also the effect of the province of birth. In line with the previous results, we find in general a lower insurance demand in the East and West of Canada, compared with the central provinces. The differences in insurance demand depending on region of birth are significant between migrants and nonmigrants. The negative marginal effects imply that migrants demand less insurance compared with those who did not migrate and were born in the same region. For example, internal migrants from the Eastern provinces demanded about 26 percentage points less insurance than nonmigrants born in the East. Interestingly, migrants also appear to demand more insurance than the residents at the destination.

A concern with the potential to undermine our analysis of differences in insurance demand between immigrants and native born is that of endogeneity. The estimated negative associations between the immigrant dummy and the probability of holding life insurance can be interpreted in two ways. It could be the case that immigrants demanded less insurance because they have lower levels of risk aversion or, alternatively, that insurance companies offer them insurance at higher prices because immigrants were seen as more “risky”. If the latter was the case it might be expected that immigrants who did purchase life insurance were charged higher premiums. To explore this, we run two additional regressions, one for immigrants and the other for internal migrants, and investigate the existence of any differences in the insurance price paid by immigrants. The results are presented in table 6. The model estimates the annual premium paid for life insurance (used as an approximation for insurance price) and uses the previous set of control variables, extended by a measure of the value of life insurance to account for the fact that a more valuable policy is more expensive. The point estimates on the variables

²⁵ For further relevant discussion, see [Attanasio and Hoynes \(2000\)](#).

Table 5. *The demand for life insurance and internal migration*

	Life insurance Probit (1)	Life insurance Probit (2)
Internal migrant	-0.00884 (0.0158)	
(Internal migrant)* (born in East)		-0.261*** (0.0919)
(Internal migrant)* (born in Center)		-0.114** (0.0572)
(Internal migrant)* (born in West)		-0.170** (0.0839)
(Internal migrant)* East		0.302** (0.154)
(Internal migrant)* Center		0.118* (0.0682)
(Internal migrant)* West		0.263*** (0.0922)
East		-0.274** (0.106)
West		-0.147** (0.0582)
Male	0.254*** (0.0148)	0.251*** (0.0150)
Married	0.124*** (0.0109)	0.127*** (0.0108)
Age	0.0201*** (0.00184)	0.0209*** (0.00184)
Age ²	-0.000256*** (2.05e-05)	-0.000264*** (2.05e-05)
Dependent children	-0.000196 (0.00174)	-0.00206 (0.00171)
Literate	0.175*** (0.0101)	0.187*** (0.00974)
Speaks official language	0.0208 (0.0172)	0.000462 (0.0174)
Urban agglomeration	0.128*** (0.00816)	0.129*** (0.00812)
Household income	0.0571*** (0.00558)	0.0564*** (0.00563)
(Household income) ²	-0.00345*** (0.000541)	-0.00342*** (0.000550)
Farmer	0.0399** (0.0172)	0.0385** (0.0172)
Insurance supply	0.000132 (0.000937)	0.000265 (0.000923)
Province controls	Yes	
Birth province controls	Yes	
Occupation controls	Yes	Yes
Observations	26,415	26,497
R ²	0.143	0.139

Note: Robust standard errors are in parentheses. Omitted categories—region: Center.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.

Table 6. *The demand for life insurance and internal migration*

	ln (Premium of life insurance)	
	OLS	
	(1)	(2)
Immigrant	0.0105 (0.0396)	
Internal migrant		0.0471 (0.0466)
ln(Value of life insurance)	0.597*** (0.0193)	0.591*** (0.0256)
Individual and household controls	Yes	Yes
Province controls	Yes	Yes
Occupation controls	Yes	Yes
Insurance supply controls	Yes	Yes
Country of birth controls	Yes	
Province of birth controls		Yes
Observations	11,985	8,643
R ²	0.365	0.348

Note: Robust standard errors are in parentheses. The regressions include a complete set of control variables, that is individual and household level controls (gender, civil status, quadratic age polynomial, number of dependent children, literacy, official language, urban agglomeration, quadratic household income polynomial, farmer), province of residence, occupation, and insurance supply controls. The specification in Column (1) contains in addition country of birth controls, whereas Column (2) includes province of birth controls (not reported). Omitted categories—religion: Roman Catholic, region: Center, country: Canada.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.

identifying immigrants or internal migrants are insignificant implying that being a migrant had no impact on the premium paid. This suggests that differences in insurance purchases were not being driven by higher prices faced by immigrants.

6. Conclusion

This study investigates the demand for life insurance among household heads in Canada in 1911, placing a particular focus on differences between natives and immigrants. This important time period in Canadian history is characterized by the remarkable growth of both the economy and the population. Moreover, state intervention on the equally rapidly growing insurance market was limited only to regulatory actions. As a result, the decision of a household to purchase insurance at this point in time can be viewed as being based on purely private motivations with the aim of ensuring the best well-being and continued prosperity of their family. Increasing life expectancy meant that the accumulation of assets became more important than ever before while a growing reliance on human capital derived earnings ensured that the income required to obtain these assets became ever more subject to risk. Life insurance could act as an instrument by which to accumulate assets and protect against risk at the same time.

Based on a sample from the Census of Canada, we investigate those motivations with a particular focus on immigrants. Holding all else equal, the results indicate that immigrants were on average around 13 percentage points less likely to hold life insurance than individuals born in

Canada. What is more, the analysis suggests that this was not due to the preferential pricing of insurance contracts in favor of native-born Canadians. Geographic differences are also found to be important, with insurance demand among immigrants differing depending on place of settlement. We also uncover evidence that immigrants took a relatively long time to assimilate in terms of life insurance, longer than it took to assimilate in terms of earnings.

The results for internal migrants are not as strong as those for migrants from abroad. However, the decision to move within the same country is associated with lower risk than moves across borders and as such attitudes toward risk would likely have less of a bearing on the decision to migrate. Furthermore, it is important to note that the sample of Canadians is somewhat peculiar, as the vast majority of individuals are themselves a descendent of a migrant (even if not necessarily in the first generation). It is at least a possibility that some of the risk attitudes have persisted over time and it may be difficult to pick up the emerging differences. Finally, this research does not observe migration within a province nor can we account for the duration of a move. It is likely, for example, that short-term internal migration is subject to lower risks than long-term moves, which would have been more typical for immigrants from Europe.

Overall, despite controlling for a wide variety of personal characteristics, differences in insurance supply and geographic variation in insurance holding, the differential between the life insurance demand of immigrants and native-born Canadians remains. As such we tentatively interpret these findings as evidence of differences in attitudes toward risk; that immigrants display relatively lower risk aversion and as a result, demand less insurance.

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Appendix A

Table A1. Robustness checks: the demand for life insurance with controls for household-head share of household income

	Life insurance			
	Probit			
	(1)	(2)	(3)	(4)
Immigrant	-0.126*** (0.00690)		-0.108*** (0.00731)	
United States		-0.0611*** (0.0158)		
England		-0.0824*** (0.00877)		
Ireland		-0.0727*** (0.0190)		
Scotland		-0.0344** (0.0152)		
Germany		-0.148*** (0.0285)		
Italy		-0.246*** (0.0305)		
Russia		-0.303*** (0.0140)		
Sweden		-0.168*** (0.0374)		
Austria		-0.319*** (0.0173)		
Rest of Europe		-0.170*** (0.0138)		
China		-0.182*** (0.0323)		
Rest of World		-0.0611*** (0.0158)		
Male	0.196*** (0.0186)	0.202*** (0.0181)	0.200*** (0.0183)	0.192*** (0.0187)
Married	0.132*** (0.0103)	0.129*** (0.0104)	0.130*** (0.0103)	0.137*** (0.0101)
Age	0.0203*** (0.00168)	0.0194*** (0.00168)	0.0196*** (0.00168)	0.0210*** (0.00167)
Age ²	-0.00023*** (1.88e-05)	-0.00022*** (1.88e-05)	-0.00023*** (1.88e-05)	-0.00024*** (1.88e-05)
Dependent children	0.000953 (0.00166)	0.00223 (0.00166)	0.00263 (0.00167)	-0.000466 (0.00164)
Literate	0.172*** (0.00995)	0.162*** (0.0102)	0.166*** (0.0102)	0.182*** (0.00969)
Speaks official language	0.133*** (0.0127)	0.0922*** (0.0141)	0.111*** (0.0136)	0.123*** (0.0130)

(Continued)

Table A1. *Continued*

	Life insurance			
	Probit			
	(1)	(2)	(3)	(4)
Urban agglomeration	0.123*** (0.00756)	0.125*** (0.00756)	0.125*** (0.00757)	0.124*** (0.00749)
Household income	0.0631*** (0.0102)	0.0647*** (0.0100)	0.0619*** (0.0106)	0.0624*** (0.0100)
(Household income) ²	-0.00202*** (0.000714)	-0.00207*** (0.000703)	-0.00196*** (0.000747)	-0.00202*** (0.000702)
Household-head share of household income	0.196*** (0.0168)	0.188*** (0.0167)	0.191*** (0.0172)	0.196*** (0.0166)
Farmer	-0.0284 (0.0179)	-0.0260 (0.0179)	-0.0248 (0.0180)	-0.0380** (0.0177)
Insurance supply	0.136*** (0.0202)	0.0753*** (0.0215)	0.115*** (0.0210)	0.0677*** (0.0191)
Anglican			-0.00520 (0.0102)	
Methodist			0.0551*** (0.0109)	
Baptist			0.0187 (0.0146)	
Presbyterian			0.0546*** (0.0107)	
Protestant			0.0285 (0.0428)	
Lutheran			-0.0604*** (0.0209)	
Jewish			-0.225*** (0.0209)	
Other			-0.0171 (0.0150)	
Immigrant * East				-0.0714*** (0.0274)
Immigrant * Center				-0.109*** (0.00811)
Immigrant * West				-0.152*** (0.0121)
East				-0.144*** (0.00945)
West				-0.0590*** (0.0119)
Province controls	Yes	Yes	Yes	
Occupation controls	Yes	Yes	Yes	Yes
Observations	30,665	30,665	30,665	30,665
Pseudo-R ²	0.132	0.136	0.136	0.128

Note: Robust standard errors are in parentheses. Omitted categories—Country (column 2): Canada, religion: Roman Catholic, region: Center.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.

Table A2. *The demand for life insurance and immigration by province*

	Life insurance Probit (1)
Immigrant* provinceNS	-0.0747** (0.0324)
Immigrant* provincePEI	-0.175 (0.117)
Immigrant* provinceNB	0.00556 (0.0445)
Immigrant* provinceQC	-0.132*** (0.0137)
Immigrant* provinceON	-0.110*** (0.00848)
Immigrant* provinceMB	-0.192*** (0.0154)
Immigrant* provinceSK	-0.163*** (0.0219)
Immigrant* provinceAB	-0.148*** (0.0218)
Immigrant* provinceBC	-0.112*** (0.0183)
Married	0.129*** (0.00852)
Male	0.213*** (0.0136)
Age	0.0209*** (0.00146)
Age ²	-0.00025*** (1.62e-05)
Dependent children	-0.000536 (0.00146)
Literate	0.183*** (0.00848)
Speaks official language	0.137*** (0.0112)
Urban agglomeration	0.112*** (0.00689)
Household income	0.0284*** (0.00531)
(Household income) ²	-0.00104*** (0.000404)
occs2	0.0787*** (0.0155)
occs3	0.122*** (0.0195)

(Continued)

Table A2. *Continued*

	Life insurance Probit (1)
occs4	0.182*** (0.0181)
occs5	-0.0236 (0.0297)
occs6	0.118*** (0.0177)
occs7	0.203*** (0.0163)
occs8	0.197*** (0.0173)
occs9	0.0625*** (0.0214)
occs10	0.298*** (0.0194)
occs11	0.263*** (0.0156)
occs12	0.215*** (0.0156)
Farmer	0.0144 (0.0145)
Insurance supply	0.127*** (0.0191)
provinceAB	-0.0644*** (0.0197)
provinceBC	-0.122*** (0.0149)
provinceMB	0.0361** (0.0168)
provinceNB	-0.0999*** (0.0121)
provinceNS	-0.202*** (0.00895)
provincePEI	-0.151*** (0.0258)
provinceQC	-0.0762*** (0.00755)
provinceSK	-0.0477** (0.0194)
Observations	37,874
Pseudo- R^2	0.126

Note: Robust standard errors are in parentheses.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.

Table A3. Robustness checks: subsampling by region and type of settlement

	Life insurance					
	Probit					
	(1) Quebec	(2) Ontario	(3) Western Provinces	(4) Eastern Province	(5) Urban	(6) Rural
Immigrant	-0.162*** (0.0160)	-0.121*** (0.00987)	-0.142*** (0.0111)	-0.0368* (0.0190)	-0.160*** (0.00779)	-0.0545*** (0.00935)
Male	0.247*** (0.0258)	0.244*** (0.0247)	0.184*** (0.0239)	0.0988*** (0.0306)	0.235*** (0.0207)	0.162*** (0.0137)
Married	0.103*** (0.0200)	0.138*** (0.0158)	0.128*** (0.0136)	0.0963*** (0.0173)	0.141*** (0.0133)	0.0996*** (0.00882)
Age	0.0130*** (0.00293)	0.0232*** (0.00226)	0.0221*** (0.00339)	0.0215*** (0.00316)	0.0180*** (0.00192)	0.0203*** (0.00185)
Age ²	-0.00018*** (3.31e-05)	-0.00026*** (2.45e-05)	-0.00026*** (4.00e-05)	-0.00027*** (3.41e-05)	-0.00021*** (2.14e-05)	-0.00025*** (2.03e-05)
Dependent children	0.00489* (0.00252)	-0.00281 (0.00268)	0.00161 (0.00335)	-0.00371 (0.00296)	0.00138 (0.00201)	-0.00205 (0.00179)
Literate	0.181*** (0.0132)	0.207*** (0.0193)	0.200*** (0.0211)	0.0803*** (0.0172)	0.172*** (0.0144)	0.147*** (0.00808)
Speaks official language	0.200*** (0.0348)	0.0931*** (0.0192)	0.202*** (0.0158)	0.0299 (0.0239)	0.153*** (0.0166)	0.108*** (0.0117)
Urban agglomeration	0.105*** (0.0130)	0.146*** (0.0119)	0.0606*** (0.0141)	0.0648*** (0.0144)		
Household income	0.0345*** (0.00670)	0.0330*** (0.00765)	0.0360*** (0.00522)	0.110*** (0.0135)	0.0312*** (0.00470)	0.0306*** (0.00471)
(Household income) ²	-0.00077*** (0.000264)	-0.00239*** (0.000859)	-0.00168*** (0.000323)	-0.00799*** (0.00206)	-0.000855** (0.000389)	-0.00151*** (0.000285)
Farmer	-0.0554* (0.0319)	0.0151 (0.0220)	0.0674** (0.0318)	0.0111 (0.0321)	0.0141 (0.0403)	0.0205 (0.0128)
Insurance supply	0.0619* (0.0343)	0.144*** (0.0289)	0.407*** (0.0562)	-0.0410 (0.0576)	0.139*** (0.0228)	0.0957*** (0.0262)
Province controls			Yes	Yes	Yes	Yes
Occupation controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,337	14,638	7,781	5,118	22,976	14,898

Note: Robust standard errors are in parentheses.

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$.